REMARKS

This paper is filed in response to the Office Action mailed February 4, 2009 (the "Office Action").

Claims 1-8, 10-12, 16-21, 23-24, and 26-36 are pending in the Application, of which claims 1, 11, 12, 17, 19, 20, 23, 24, 35 and 36 are in independent form. Claims 9, 14, 21-22, and 25-26 were previously canceled. Claims 1, 4, 11, 12, 17, 19, 20, 23, 24, and 27-34 are amended herein. Claims 35 and 36 are new.

No new matter has been added through the amendments and additions to the claims.

In the Office Action, claims 1-16, 20, 23-24, and 27-33 stand rejected under U.S.C. § 102 as purportedly being anticipated by U.S. Patent No. 6,628,809 to Rowe et al. (hereafter "Rowe"). Claims 17-18 stand rejected under U.S.C. § 103 as allegedly being unpatentable over Rowe in view of U.S. Patent No. 4,582,985 to Lofberg (hereafter "Lofberg"), and in further view of U.S. Patent No. 4,614,861 to Pavlov et al. (hereafter "Pavlov"). Claim 19 stands rejected under U.S.C. 35 § 103 as purportedly being unpatentable over U.S. Patent No. 4,582,985 to Schmitt et al. (hereafter "Schmitt") in view of Rowe. Claim 34 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

In light of the amendments and remarks herein, reconsideration of the pending claims is respectfully requested. For the Examiner's convenience, this response addresses each of the issues in the order it was raised in the Office Action.

REJECTION OF CLAIM 24 UNDER 35 U.S.C. § 112

In the Office Action, claim 24 stands rejected as purportedly being indefinite. The Applicants have amended claim 24 accordingly.

REJECTION OF CLAIMS 1-16, 20, 23-24, AND 27-33 UNDER 35 U.S.C. § 102

The Office Action rejects claims 1-16, 20, 23-24, and 27-33 under 35 U.S.C. § 102 as purportedly being anticipated by Rowe. A claim is properly anticipated under 35 U.S.C. § 102 only if "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131, *citing* Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628 at 631 (Fed. Cir. 1987); emphasis added. "The

identical invention must be shown in as complete detail as is contained in the . . . claim." MPEP §2131, citing Richardson v. Suzuki Motor Co., 868 F.2d 1226 at 1236 (Fed. Cir. 1989); emphasis added.

Rowe fails to disclose at least, "a biometric sensor configured to measure a **specific, internal, sub-epidermal physiological structure** within said user;" and/or determining "...a biometric marker of said user [from the measurement of the specific, internal, sub-epidermal structure]..." Claim 1; emphasis added; *also see* claims 12, 17, 19, 20, and 24. Therefore, the Applicants respectfully traverse the rejection of these claims.

A. Rowe Does Not Disclose Measuring a Specific, Internal, Sub-Epidermal Structure Within a User and/or Measuring a Specific, Internal, Sub-Epidermal Process Occurring Within a User

The disclosure teaches measuring **specific**, internal sub-epidermal structures and/or processes within a user:

> "The biometric sensor is configured to determine specific unique internal biometric markers of a user. In a preferred embodiment of the invention, the sensor includes an emitter and a receiver. The emitter emits light or another form of energy which is partially absorbed and partially reflected by a portion of flesh of a user. Such light or energy may include, but is not limited to, ultrasonic energy, infra red light, near infra red light, ultra violet light, specific wavelength-visible or nonvisible light, white light, or electrical signals. ... Some of the internal biometric markers which may be measured or determined from the biometric sensor include, but are not limited to, bone density, electromagnetic waves, cardiac rhythms, diacrotic notch readings, blood oxygen levels, capillary density, glucose levels, hematocrit levels, or sub-dermal layer analysis...." Pg. 9 line 18 – Pg. 10 line 2; emphasis added.

Each of the measurements discussed above (*e.g.,* bone density, cardiac rhythms, etc.) correspond to **specific** structures or processes occurring within the user's body. Id.

The claims have been amended to clarify this feature. Specifically, claim 1 recites, "...a biometric sensor configured to measure a specific, internal, sub-epidermal structure within a user..." Emphasis added; *also see* claims 12, 17, 19, 20, 23, and 24. Claim 11 recites, "...a biometric sensor configured to measure a specific, continuous, time-variant, and sub-epidermal physiological process occurring within a user..." Emphasis added; *also see* claim 23.

In contrast, Rowe discusses a tissue spectra that does not correspond to any specific structure and/or process occurring within the user. Rowe Abstract. Rowe states that user verification is based on the tissue spectral data, which is not a measurement of a specific internal structure or process and/or is not derived from a measurement of a specific structure and/or process as recited in the claims:

> "[t]he present invention is based on Applicant's recognition that an accurate, precise and repeatable tissue spectra of an individual in the near infrared range contains spectral features and combinations of **spectral features** which are unique to that individual." Rowe col. 4 lines 58-62; emphasis added.

Rowe states that these "spectral features" do not relate to and/or measure any specific structure or process occurring within the user. In fact, Rowe states that many different aspects of tissue contribute to the makeup of the spectra (*e.g.,* cellular structure, water content, analyte content, etc.)

> "Water is by far the largest contributor to absorption … tissue greatly scatters light because there are many refractive index discontinuities in a typical tissue sample…" Rowe col. 5 lines 48-57.
>
> "The light energy contacting the skin surface is differentially absorbed by … various component and analytes …" Rowe col. 8 lines 45-48.
>
> In fact, Rowe states that some contributors to the tissue spectrum are unknown:
>
> "Photons reflect and refract at refractive index discontinuities, and so light impinging on tissue immediately has a small reflectance at the tissue surface. This is referred to as specular reflectance… reflected light energy containing spectral data unique to an individual **is believed to be** that light which is reflected back to the surface through refractive index discontinuities deeper within the tissue sample. This reflected light is referred to as diffusely reflected light…" Rowe col. 6 lines 23-37.

As illustrated above, the Rowe tissue spectrum does not correspond to any specific structure or process occurring within the user. Rather, the spectrum is a "black box," which is used to produce a signal that is unique to the user. *See* Rowe col. 7 lines 49-57. Therefore, Rowe cannot anticipate a sensor configured to "measure a specific… structure within a user" and/or "specific… process occurring within the user" recited in the claims. *See* claims 1, 12, 17, 19, 20, and 24.

In further support of this conclusion, the Applicants have provided herewith the declaration of David Miller pursuant to C.F.R. § 1.132. Mr. Miller is an expert in the field of

biometrics and, in particular, an expert in light emitting devices such as those discussed in Rowe and the present Application. In the declaration, Mr. Miller states that, in his opinion, Rowe does not discuss measuring a specific structure and/or process as recited in the claims.

B. Rowe Does Not Teach or Suggest Determining a Biometric Marker from a Measurement of a Specific, Internal, Sub-Epidermal Structure Within a User

As discussed above, the claims recite measuring a specific, internal, sub-epidermal structure within and/or a specific physiological process occurring within the user. *See* claims 1, 11, 12, 17, 19, 20, 23, and 24. In addition, the claims recite determining a biometric marker from the measurement:

> "...determine a biometric marker of said user therefrom [from the measurement of the specific, internal, sub-epidermal structure]..." Claim 1; *also see* claims 11, 12, 17, 19, 20, 23, and 24.

In contrast, Rowe does not determine a biometric marker from a measurement of a specific structure or process. As shown in Rowe Figure 5, the tissue spectrum is used directly, with no intervening step to determine a biometric marker therefrom:

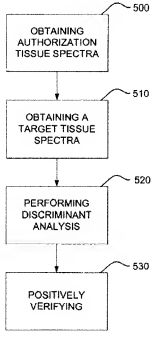

Fig. 5

As shown in Figure 5, once the spectra is obtained (at step 510), the spectra data is used to verify identity (at step 520). Figure 5 does not show a step in which a biometric marker is determined from the spectra data. Therefore, not only does Rowe fail to disclose measuring a specific, internal, sub-epidermal structure, Rowe fails to disclose determining a biometric marker therefrom. *See* claims 1, 12, 17, 19, 20, and 24.

C. Rowe Cannot Anticipate Claims 1-16, 20, 23-24, AND 27-33

As illustrated above, Rowe fails to disclose at least: "...measuring a specific" structure or physiological process occurring within a user and/or determining a "biometric marker" from the measurement as recited in claims 1-16, 20, 23-24, and 27-33. Therefore, Rowe fails to teach or suggest each and every feature recited in these claims. As such, the Applicants respectfully traverse the rejection of claims 1-16, 20, 23-24, and 27-33.

REJECTIONS UNDER 35 U.S.C. § 103

A. Rejection of Claims 17-18

The Office Action admits that Rowe fails to disclose a planar card and, as such, relies on Lofberg. However, as shown above, Rowe fails to disclose at least "...measuring a specific" structure or physiological process occurring within a user and/or determining a "biometric marker" from the measurement as recited in claims 17-18. As discussed in Applicants' previous response, neighter Lofberg nor Pavlov teach or suggest measuring specific, internal and/or sub-epidermal structure or processes as recited in the claims. Therefore, the Applicants respectfully traverse the rejection of claims 17 and 18.

B. Rejection of Claim 19

The Office Action purports that Schmitt discloses a "biometrically activated portable telecommunications device," and admits that Schmitt fails to teach or suggest a biometric sensor as recited in the claims. Therefore, the Office Action relies on Rowe. However, as discussed above, Rowe fails to disclose at least "...measuring a specific" structure or physiological process occurring within a user and/or determining a "biometric marker" from the measurement as recited in claim 19. Therefore, the Applicants respectfully traverse this rejection.

NEW CLAIMS 35-36

New claims 35 and 36 recite measuring first and second "specific, internal, sub-epidermal" physiological characteristics, from which two biometric markers may be determined. As discussed above, Rowe fails to disclose at least : "...measuring a specific" structure or physiological process occurring within a user and/or determining a "biometric marker." Therefore, the Applicants submit that Rowe fails to disclose measuring two specific physiological characteristics as recited in claims 35 and 36. Therefore, the Applicants respectfully submit that claims 35 and 36 represent patentable subject matter.

DECLARATION OF DAVID MILLER PURSUANT TO C.F.R. §1.132

The Applicants have attached hereto to declaration of David Miller pursuant to C.F.R. § 1.132. In this declaration, Mr. Miller provides additional support to the Applicants' contention that Rowe fails to disclose measuring a specific structure or process as recited in the claims.

GENERAL CONSIDERATIONS

By the remarks provided herein, Applicants have addressed all outstanding issues presented in the Office Action. Applicants note that the remarks presented herein have been made merely to clarify the claimed invention from elements purported by the Office Action to be taught by the cited references. Such remarks should not be construed as acquiescence, on the part of Applicants, as to the purported teachings or prior art status of the cited references, nor as to the characterization of the cited references advanced in the Office Action. Accordingly, Applicants reserve the right to challenge the purported teachings and prior art status of the cited references at an appropriate time.

CONCLUSION

For the reasons discussed above, Applicants submit that the claims are in proper condition for allowance, and a Notice of Allowance is respectfully requested. If the Examiner notes any further matters that may be resolved by a telephone interview, the Examiner is encouraged to contact John Thompson by telephone at (801) 578-6994.

DATED this 2nd day of June, 2009.

Respectfully submitted,

By /John R. Thompson/
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Rick V. Murakami et al. Confirmation No. 9796

Application No. 09/758,836

Filed: January 10, 2001

For: **DEVICE USING HISTOLOGICAL AND PHYSIOLOGICAL BIOMETRIC MARKER FOR AUTHENTICATION AND ACTIVATION**

Group Art Unit: 2612

Examiner: Nguyen, Nam V.

Attorney Docket No. 36360/1.9

Date: June 2, 2009

37 CFR § 1.132 DECLARATION OF DAVID R. MILLER

TO THE COMMISSIONER FOR PATENTS:

1. My name is David R. Miller. I am a practicing Engineer / Physicist with over 28 years experience in RF, photo optics, electromagnetics, and photo spectroscopy. I have spent the last 16 years specializing in biomedical and biometric based spectroscopy. I have been the Vice President of Research and Development for HemaMetrics and CMTI. I have also served as a Research Fellow for LG Electronics in Seoul, South Korea. I have conducted blood analysis clinical trials with the American Red Cross, University of California at Davis Medical Center, Denver Children's Hospital, and Hong Kong Red Cross. I have published numerous journal articles and hold over 20 US patents (as well as over 30 international patents) in the field of biomedical and biometric photo spectroscopy. In particular, I have experience working with light emitting devices similar to those discussed in the above-captioned application (the "Application") and in U.S. Patent No. 6,6228,809 to Rowe et al. ("Rowe").

2. I have reviewed the claims of the Application and Rowe as cited in the Office Action mailed February 4, 2009.

3. I believe that the "tissue spectra" discussed in Rowe does not comprise a measurement of a specific physiological structure or process within an individual as recited in the claims. *See* Rowe col. 1 lines 16-24.

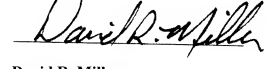
4. I believe that a spectra comprising wavelengths between 1.0 and 2.5 μm as discussed in Rowe would be incapable of measuring specific structure and/or physiological process occurring within an individual. The spectrum between 1.3 and 2.5 um is heavily influenced by the non-biologically specific water content of the individual. This is pointed out in Rowe. *See* Rowe col. 5 lines 48-65. Further, certain tissues and bloods analytes present very similar spectral signatures, such as glucose and urea, for example. In short, it is clear to me that Rowe does not intend to measure a specific feature of the body (a structure or process occurring within the body). *See* Rowe col. 7 lines 48-58. Rather, Rowe relies on the tissue spectra itself as a biometric marker, as opposed to a marker derived from a specific structure or process. *See* Rowe col. 1 lines 16-24.

5. I believe that a "tissue spectra" obtained in the manner described in Rowe, would be incapable of measuring a specific structure and/or process occurring within an individual, since the spectral data is affected by many different (non-independent) factors. Therefore, it would be impossible to extract a measurement of any specific structure and/or process within the individual. *See* Rowe col. 8 lines 39-52.

6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the Application or any patent issued thereon.

Respectfully Submitted,

Date: 21 May 09



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